Amendments to the Specification

Please amend the paragraph bridging pages 9 and 10 in the following manner:

Further, the sample tomographic image may be generated at uniform or equal intervals over the heartbeat cycle. However, a range of the cardiac time phase, which is previously predicted to include the static cardiac time phase, may be detected and the sample tomographic image may be generated only in the range or at dense time intervals in the range. Thus, the sample image generating means may generate a plurality of sample tomographic images in the predetermined cardiac time phase range determined based on the correlation data between the heartbeat information and the static cardiac time phase that are determined previously. According to the above arrangement, the static cardiac time phase can be detected ~~speedy~~ rapidly and the tomographic image with the small amount of motion artifacts can be acquired in a short time.

Please amend the paragraph bridging pages 12 and 13 in the following manner:

The image processing apparatus 7 includes various functions of a calculation means 7a, a projection data forming means 7b, a tomogram creating means 7c, a sample ~~tomogam~~ tomogram creating means 7d, a selecting means 7e, a perfect tomogram rearrangement processing means 7f, and the like. The calculation means 7a is a detecting means for calculating a heartbeat rate of the subject from the intervals of an R wave at time at which an arbitrary position or slice is imaged based on the heartbeat information of the subject acquired in imaging, calculating a static cardiac time phase with a small amount of motion artifacts at an arbitrary body portion on the slice from the heartbeat rate, and detecting a static cardiac time phase. The projection data forming means 7b forms or synthesizes projection data that is acquired by combining projection data, which corresponds to the static cardiac time phase calculated by the calculation means 7a as well as is acquired over a plurality of heartbeat cycles in a projection angle range necessary to an image rearrangement

arithmetic operation. The tomogram creating means 7c creates or generates a tomographic image at an arbitrary imaging position from the projection data acquired by the projection data forming means 7b by the image reconstitution. The sample tomographic image creation means 7d creates a plurality of tomographic images, in other words, sample tomographic images at the above imaging position in a different cardiac time phase on the rearranged image that has been subjected to the rearrangement processing at the above arbitrary imaging position. The selecting means 7e selects a tomographic image in a cardiac time phase with a smallest amount of motion artifacts from the plurality of tomographic images created by the sample tomogram creating means 7d. The perfect tomogram rearrangement processing means 7f creates a perfect tomographic image by subjecting the tomographic image selected by the selecting means 7e to perfect tomographid image rearrangement processing.

Please amend the paragraph bridging pages 15 and 16 in the following manner:

First, at step S1, heartbeat information measured by the electrocardiograph 6 is read by the image processing apparatus 7. The calculation means 7a of the image processing apparatus 7 calculates a heartbeat rate of the subject in imaging from the thus read heartbeat information at step S2. Next, the operator designates a portion to which attention is paid through the input device 13 at step S3. The image processing apparatus 7 previously determines a relation between a heartbeat rate and a static cardiac time phase as shown in FIG. 3 of respective portions of a heart, i.e. a right coronary artery, a left coronary artery, a ramus circumflexus, and the like and respective portions in the vicinity of the heart, i.e. a lung artery, a lung vein, a lung field, and the like and stores the relation as data (hereinafter, referred to as static cardiac time phase data) and reads the heartbeat rate of the patient calculated at step S2 and data of a static cardiac time phase of an attention-paid-portion stored to the image processing apparatus 7 at step S4, and the calculation means 7a calculates a static cardiac time phase of the attention-paid-portion from them at step S5. At this time, the portion to which attention is paid is designated by displaying the name of

data of the static cardiac time phase stored in the image processing apparatus 7 on a user interface 5a of the display device 5 and selecting designated portions 16a to 16n (including right and left coronary portions 16a and 16b, anterior descending branch portion 16c, ramus circumflexus portion 16d, etc.) using the input device 13, thereby the operator can smoothly select the portion to which attention is paid.

Please amend the paragraph bridging pages 17-19 in the following manner:

First, at step S1, a tomographic image at an arbitrary sliced position is displayed on the display device 5. Next, at step S2, the operator designates a range of an attention-paid-portion 16 using the input device 13 as shown in FIG. 7. Although it is preferable that the range be as small as possible to reduce a load on an arithmetic operation and to shorten a time necessary to generate sample tomographic images, it is preferable to set the range such that a portion, which is observed over at least one heartbeat cycle, is not located outside of the range by a body movement due to heat beats. Next, at step S3, the sample ~~tomogam~~ tomogram creating means 7d of the image processing apparatus 7 creates projection data in various cardiac time phases at the arbitrary sliced position as shown in FIG. 8 and subjects the respective projection data to the image reconstitution processing only in the range of the tomographic image designated at the previous step, on the tomographic image. In FIG. 8, projection data are generated in n kinds of cardiac time phases, and the respective projection data are subjected to the image reconstitution only in the selected range, thereby sample tomographic images are acquired in the n kinds of the cardiac time phases. FIG. 9 is a view showing a relation between a heartbeat waveform and n (n is an integer) types of cardiac time phases. As shown in FIG. 9, each of the n types of the cardiac time phases is a cardiac time phase appearing at every intervals when one heartbeat cycle is equally divided into n sections. Since the image reconstitution processing is executed only in the selected range, an arithmetic operation time is reduced as compared with a case that an entire image region is subjected to the image reconstitution processing. When, for example, a region whose range is designated, i.e.

a size of a sample image is, for example, 64×64 pixels with respect to a tomographic image having, for example, 512×512 pixels, the arithmetic operation time is reduced 1/64.

Please amend the abstract on page 29 in the following manner:

~~To reduce~~ An X-ray CT apparatus can be configured such that an amount of artifacts of a tomographic image of a heart ~~in an X-ray CT apparatus for generating a tomographic image by reconstructing projection data acquired by scanning a predetermined slice of a subject by providing~~ is reduced. For example, the X-ray CT apparatus ~~with a~~ can include detecting means for detecting a static cardiac time phase with a small amount of motion artifacts in a predetermined portion of the subject based on heartbeat information acquired in association with the projection data, and [[an]] image reconstructing means for generating the tomographic image by reconstructing projection data corresponding to the static cardiac time phase detected by the detecting means.